MEDICAL PROCEEDINGS

MEDIESE BYDRAES

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EDITORIAL · REDAKSIONEEL

THE FATE OF THE DURBAN MEDICAL SCHOOL

On 4 February 1958 the Acting Minister of Education reaffirmed the Government's plans in connexion with the Faculty of Medicine of the University of Natal.

Prof. I. Gordon, Dean of the Faculty of Medicine at the University of Natal, immediately issued the following statement:

'In spite of all representations, the Acting Minister of Education has stated that the Government intends to proceed with its plan to convert the Medical School into a Government institution.

Having made up its mind, the Government now wishes to send a Committee to the Medical School to find a means whereby this disastrous decision can be implemented. In other words, we are going to be asked to participate in what we feel would be the digging of our own graves.

We see no reason why our School should be removed from the University of Natal. Our representations in this regard have been fully documented and submitted to the authorities concerned.

As resolved as the Government may be to convert our Medical School into a Government institution, so determined are we to remain in the University of Natal.

In the space of a few years, the Durban Medical School has made great contributions in the fields of medical education, medical research and medical services to the non-White peoples. The Durban Medical School is an institution worth fighting for and if the Government wishes to rob the University of Natal of its School, then it must carry out this assault without any assistance from us.

We hope that University teachers, the medical profession and the general public in all parts of the country will continue to help us to resist the Government's plan and will support us in the bitter struggle which must now inevitably ensue.'

We have reason to believe that this moving declaration of policy and affirmation of faith

DIE LOT VAN DIE DURBANSE MEDIESE SKOOL

Die regering se planne in verband met die Fakulteit van Geneeskunde aan die Universiteit van Natal is op 4 Februarie 1958 deur die Waarnemende Minister van Onderwys bekragtig.

Onmiddellik daarna het prof. I. Gordon, Dekaan van die Fakulteit van Geneeskunde aan die Universiteit van Natal, die volgende verklaring uitgereik:

‚Ten spyte van alle vertoë het die Waarnemende Minister van Onderwys aangekondig dat die Regering voornemens is om voort te gaan met sy plan vir die omskepping van hierdie Mediese Skool in 'n staatsinrigting.

Die Regering wat reeds kant en klaar besluit het, wil nou 'n Komitee na die Mediese Skool stuur om middele te beraam om uitvoering aan hierdie rampspoedige beslissing te gee. Met ander woorde, ons gaan gevra word om deel te neem aan wat deur ons beskou word as die grawe van ons eie graf.

Ons weet van geen rede waarom ons Skool van die Universiteit van Natal geskei moet word nie. Ons vertoë in hierdie verband is volledig op skrif gestel en aan die betrokke owerheid voorgelê.

Binne 'n tydperk van 'n paar jaar het die Durbanse Mediese Skool belangrike bydraes op die gebied van mediese onderrig, mediese navorsing en mediese dienste aan die nie-blanke bevolking gelewer. Dis die moeite werd om vir 'n inrigting soos die Durbanse Mediese Skool te veg. As die Regering die Universiteit van Natal van sy Skool wil beroof, dan moet hy hierdie aanval uitvoer sonder enige hulp van ons kant.

Ons hoop dat universiteitsonderwysers, die mediese professie en die algemene publiek in alle dele van die land sal voortgaan om ons by te staan in die weerstand wat ons teen die Regering se plan bied, en ons sal steun in die bittere stryd wat nou onvermydelik moet volg.'

has the complete backing of the staff of the Faculty of Medicine at the University of Natal. This latest exacerbation of the tensions which have been created over this issue, has now led to a new climax of gravity. A state of open conflict between the University of Natal and the Government of the day has been precipitated by the adamant and uncompromising determination of the latter to remove the School from the University which gave it birth and to place it under the direct control of the State.

The extent of the catastrophe should not be underestimated. The Government is acting in the teeth of a warning offered in the form of a unanimous resolution adopted by the South African Medical and Dental Council at its March Meeting last year. The resolution, which was proposed by the President of the Council (Prof. S. F. Oosthuizen) and seconded by Prof. H. W. Snyman (Dean of the Faculty of Medicine at the University of Pretoria) read:

'That the South African Medical and Dental Council is *inter alia* concerned with the entire pattern of medical education and particularly as far as the acceptance of minimum standards is concerned.

It has been brought to the notice of the Council that a new method of control of education is envisaged for the Durban Medical School and that there is a possibility that this may lead to a new pattern which may not be acceptable to the Council for purposes of training of medical practitioners.

As a statutory body the Council has grave responsibilities in regard to medical education. In order to obviate unforeseen difficulties which may arise at some future date when the standards are to be considered and the facilities, School and examinations inspected, the Council respectfully suggests to the Minister of Education and of Health to take the necessary steps prior to enacting the legislation now before Parliament, to have the implications as they affect the responsibilities of the South African Medical and Dental Council further investigated and reported upon.'[1]

Moreover, when a deputation of the South African Medical and Dental Council waited upon the Minister, one of its members (Prof. F. D. du T. van Zijl, Dean of the Faculty of Medicine at the University of Stellenbosch) unhesitatingly advised the Minister that 'it was not desirable for teachers of medicine to become public servants'.[2]

The cogent reasons against the Government's policy have been thoroughly canvassed. Disapproval has also been expressed by the organized medical profession in South Africa and the undesirability of meting out to the

1. This Journal, 30 March 1957, p. 163.
2. This Journal, 8 June 1957, p. 269.

Ons het rede om aan te neem dat hierdie roerende beleidsverklaring en geloofsbetuiging die algehele steun van die personeel van die Fakulteit van Geneeskunde aan die Universiteit van Natal geniet. Hierdie jongste verergering van die spanning wat reeds deur die betrokke aangeleentheid geskep is, het nou aanleiding tot 'n nuwe hoogtepunt van erns gegee. 'n Openlike botsing tussen die Universiteit van Natal en die Regering van die dag is verhaas deur die onvermurfbare en ontoegeeflike vasberadenheid van laas genoemde om die Skool te skei van die Universiteit wat geboorte daaraan gegee het, en om dit onder regstreekse beheer van die Staat te plaas.

Die omvang van die ramp moet nie onderskat word nie. Die Regering volhard met sy plan nieteenstaande die waarskuwing vervat in 'n mosie wat eenparig deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad aangeneem is op sy vergadering in Maart van verlede jaar. Daardie mosie wat deur die President van die Raad (prof. S. F. Oosthuizen) voorgestel en deur prof. H. W. Snyman (dekaan van die Fakulteit van Geneeskunde aan die Universiteit van Pretoria) gesekondeer is, lui soos volg:

'Dat die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad onder meer belang het by die hele patroon van mediese onderrig, veral vir sover dit die aanvaarding van minimum-standaarde betref.

Dit is onder die aandag van die Raad gebring dat 'n nuwe metode vir die beheer oor opleiding aan die Durbanse Mediese Skool in vooruitsig gestel word, en dat daar 'n moontlikheid is dat dit aanleiding kan gee tot die ontstaan van 'n nuwe patroon wat miskien nie aanneemlik vir die Raad sal wees vir sover dit die opleiding van mediese praktisyns betref nie.

As 'n statutêre liggaam het die Raad ernstige verantwoordelikhede in verband met die opleiding van geneeshere. Met die oog op die voorkoming van onvoorsiene moeilikhede wat bes moontlik in die toekoms kan ontstaan wanneer die standaarde oorweeg, en die fasiliteite, Skool en eksamens geïnspekteer moet word, wil die Raad eerbiediglik by die Minister van Onderwys en Gesondheid aan die hand doen dat, vóór die aanname van die wetgewing wat op die oomblik voor die Parlement is, hy die nodige stappe moet doen om ondersoek in te stel na en verslag uit te bring oor die implikasies van die wet vir sover dit die verantwoordelikhede van die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad betref.'[1]

Temeer, toe 'n afvaardiging van die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad sy opwagting by die Minister gemaak het, het een van die lede van die afvaardiging (prof. F. D. du T. van Zijl, dekaan van die Fakulteit van Geneeskunde aan die Universiteit van Stellenbosch) baie

1. Hierdie Tydskrif, 30 Maart 1957, bl. 164.

Durban Medical School an authoritarian fate has been stressed unequivocally.

There is little difficulty in understanding the position taken up by the staff of the Durban Medical School 'not to become teachers of medicine as members of a public service appointed, controlled and disciplined by a State Department in a so-called University College'.[3] A University Medical School cast in such a mould cannot justify its name and would be incapable of carrying out its proper function as the custodian of the standards of scholarship and knowledge. In a Department of State there must necessarily be a hierarchy of submission in more than an administrative sense. There must therefore inevitably be the creation of something which is the very antithesis of the concept of a University and the intellectual climate which needs to prevail in a true academic environment.

There is, however, another equally serious moral issue. Those of our colleagues who accepted these posts on the staff of the Durban Medical School did so on the distinct understanding that their appointments were true university appointments. They have given some of the best years of their professional lives to the establishment of what is undoubtedly an outstanding teaching and research centre.

In throwing in their professional lot with that of the University of Natal, however, they had every reason not to anticipate their arbitrary transfer to the establishment of a Government Department. The only justification for such a change could have been their complete acquiescence in the proposal—something which has never been forthcoming. Instead, they find themselves amputated from their *Alma Mater* and faced with the prospect of complete academic annihilation.

No more unnecessary or provocative action could therefore be contemplated than the one which the Government has now announced.

In view of the moral obligations which the State owes to those who gave their professional careers to the creation of this Medical School, we would urge upon the authorities, even at this late stage, the wisdom of leaving well alone. Otherwise, we will be faced with a debacle of most serious magnitude, contrived for some totally pointless purpose.

Cui bono?

3. *Further Report on the Government's Intention to Remove the Faculty of Medicine from the University of Natal*, 4 May 1957, Preface, p. 3.

definitief aan die Minister gesê dat ‚dit nie raadsaam vir dosente in die geneeskunde is om staatsamptenare te word nie'.[2]

Die oortuigende besware wat teen die Regering se beleid ingebring is, is deeglik uitgepluis. Afkeur is ook uitgespreek deur die georganiseerde mediese professie in Suid-Afrika, en die onwenslikheid daarvan om 'n outoritêre vonnis oor die Durbanse Mediese Skool uit te spreek, is onomwonde beklemtoon.

Die posisie wat aangeneem word deur die personeel van die Durbanse Mediese Skool, nl. ‚om nie dosente van geneeskunde te word as lede van 'n staatsdiens wat aangestel, gekontroleer en gedissiplineer word deur 'n staatsdepartement in 'n sogenaamde universiteitskollege nie',[3] is maklik om te begryp. 'n Universitêre Mediese Skool wat op so 'n lees geskoei word, sal nie reg aan sy naam kan laat geskied nie, en sal boonop nie in staat wees om uitvoering te gee aan sy behoorlike funksies as beskermer van die standaarde van geleerdheid en kennis nie. In 'n Staatsdepartement moet daar noodwendig 'n hiërargie van onderdanigheid in meer as die administratiewe betekenis van dié woord wees. Onvermydelik moet dit aanleiding gee tot die totstandbrenging van iets wat in skerp teenstelling staan met die begrip van 'n Universiteit en die intellektuele klimaat wat in 'n suiwer akademiese omgewing moet heers.

Daar is egter 'n ander ewe ernstige morele oorweging. Diegene onder ons kollegas wat betrekkings in die personeel van die Durbanse Mediese Skool aanvaar het, het dit gedoen onder die uitdruklike verstandhouding dat hul aanstellings suiwer universiteitsaanstellings was. Hulle het van die beste jare van hul professionele lewe gewy aan die totstandbrenging van wat ongetwyfeld 'n voortreflike onderrig- en navorsingsentrum is.

Toe hulle hul professionele lot met dié van die Universiteit van Natal ingewerp het, het hulle geen rede gehad om te verwag dat hulle op 'n mooi dag arbitrêr na die personeel van 'n staatsdepartement verplaas sou word nie. Die enigste regverdiging vir so 'n verandering sou hul algehele toestemming daartoe gewees het—en dit is iets wat nog nooit verkry is nie. In plaas daarvan ontdek hulle nou dat hulle van hul *Alma Mater* geskei gaan word, en dat hulle van aangesig tot aangesig met algehele akademiese ondergang staan.

Geen onnodiger en tergender stappe kan derhalwe bedink word as dié wat nou deur die Regering aangekondig is nie.

Met die oog op die morele verpligtinge wat die Staat verskuldig is aan diegene wat hul professionele loopbane aan die totstandbrenging van hierdie Mediese Skool gewy het, wil ons by die owerheid daarop aandring—self op hierdie laat stadium—om niks te doen waaroor hy later spyt kan kry nie. So nie, sal ons te staan kom voor 'n ramp van die allerernstigste omvang—'n ramp wat vir 'n heeltemal betekenislose doel versin is.

Cui bono?

2. Hierdie Tydskrif, 8 Junie 1957, bl. 270.
3. *Verdere Verslag oor die Regering se Voorneme om die Fakulteit van Geneeskunde van die Universiteit van Natal te Skei*, 4 Mei 1957, Voorwoord, bl. 3.

ARTHRITIS AND RHEUMATISM

Arthritis and Rheumatism is the official journal of the American Rheumatism Association, which has decided to issue this new bi-monthly publication because of the increasing interest in the rheumatic and connective tissue diseases and the rapidity with which new knowledge is accumulating.

The aims of the new journal are:

(1) To improve and speed the dissemination of information in this important field.

(2) To serve the needs of both the clinician and the research worker by achieving an optimal balance in the choice of articles between reports of clinical experience and pertinent advances offered by basic science disciplines, such as pathology, immunology, biochemistry and pharmacology.

(3) To stimulate both basic and clinical research in rheumatic and connective tissue diseases.

(4) To set high standards for, and ensure the scientific quality of, contributions to the field by subjecting each article to the careful scrutiny of an editorial board qualified in all aspects of this subject.

The Editor-in-Chief is Prof. William S. Clark of the Department of Medicine, Western Reserve University. He is assisted by Prof. Ralph J. Wedgwood of the Department of Pediatrics at the same University, as well as by a very distinguished Editorial Board.

Arthritis and Rheumatism is aimed particularly at the physician, the rheumatologist, the orthopaedic surgeon and those engaged in basic research in this field. Its value will obviously also be considerable to general practitioners and those interested in the relatively new subject of geriatrics.

Each issue will contain about 100 pages and the first number appears in February 1958.

Arthritis and Rheumatism is published for the American Rheumatism Association by Grune & Stratton, Inc., 381 Fourth Avenue, New York 16, N.Y., U.S.A. The South African subscription is $11.00 yearly.

Arthritis and Rheumatism is die amptelike tydskrif van die Amerikaanse Rumatiekvereniging wat besluit het om hierdie nuwe publikasie al om die 2 maande uit te bring met die oog op die toenemende belangstelling in siektes van die rumatiese en verbindingsweefsels, en die snelheid waarmee nuwe kennis ingewin word.

Die oogmerke van die nuwe tydskrif is:

(1) Om die verspreiding van inligting oor hierdie belangrike onderdeel van die geneeskunde te verbeter en te versnel;

(2) Om in die behoeftes van sowel die klinis as die navorsingswerker te voorsien deur die totstandbrenging van optimum-ewewigtigheid in die keuse van artikels tussen, aan die een kant, verslae oor kliniese ondervinding, en, aan die ander kant, die pertinente vooruitgang wat gemaak word op basiese wetenskaplike gebiede soos die patologie, immunologie, bioskeikunde en farmakologie;

(3) Om sowel basiese as kliniese navorsing na die probleem van kwale van die rumatiese en verbindingsweefsels aan te moedig; en

(4) Om hoë maatstawwe vir bydraes tot hierdie sfeer van die geneeskunde vas te stel, en om die wetenskaplike gehalte van sulke bydraes te verseker deur iedere artikel vir sorgvuldige ondersoek voor te lê aan 'n redaksionele komitee wat in alle aspekte van die onderwerp gekwalifiseer is.

Die Hoofredakteur is prof. William S. Clark, van die Departement van Geneeskunde aan die „Western Reserve"-universiteit. Hy word bygestaan deur prof. Ralph J. Wedgwood, van die Departement van Kindergeneeskunde aan dieselfde Universiteit, sowel as 'n gedistingeerde redaksionele raad.

Arthritis and Rheumatism is bedoel hoofsaaklik vir die klinis, die rumatoloog, die ortopediese chirurg en diegene wat basiese navorsingswerk op hierdie besondere gebied doen. Dit sal natuurlik ook van aansienlike waarde wees vir algemene praktisyns en diegene wat belang in die betreklik nuwe onderwerp van geriatrie stel.

Iedere uitgawe sal uit sowat 100 bladsye bestaan, en die eerste nommer verskyn in Februarie 1958.

Arthritis and Rheumatism word gepubliseer vir die Amerikaanse Rumatiekvereniging deur Grune & Stratton, Inc., 381 Fourth Avenue, New York 16, N.Y., V.S.A. Die Suid-Afrikaanse intekengeld is $11.00 per jaar.

REVIEWS OF BOOKS

DRUG ADDICTION

Treatment and Care of Drug Addicts: Report of a Study Group. World Health Organization: Technical Report Series, 1957, No. 131; 19 pages. 1s. 9d. Pretoria: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724.

The WHO Study Group on *Treatment and Care of Drug Addicts* met in Geneva in November 1956 to examine the scientific knowledge and clinical experience on this matter and to determine principles for the management of addicts with different etiology and pathology and in various cultural surroundings. The particular drugs of addiction con-

sidered were opium, opium alkaloids and substances derived therefrom, synthetic substances with morphine-like characteristics, and cannabis substances.

Fortunately, a large number of addicts are fairly easily amenable to treatment. Thus mass methods of treatment may be highly successful among persons whose addiction stems from more or less accidental stress, such as exhaustion, hunger or poverty; addiction due largely to social, environmental or cultural factors may respond to treatment without great difficulty. The most difficult persons to treat, though the least numerous, are those who suffer from a basically pathological character structure; for these, intensive psychotherapy is needed, and it must in each case be based on an analysis of the factors leading to the addiction. Summing up the situation, the Study Group considers that, 'viewed according to amenability to treatment, drug addiction appears to have a much less discouraging prognosis than is generally believed' when the focus of attention is on this last group only.

For effective treatment there must be effective limitation to the supply of drugs, and 'most addicts will require some kind of coercion—preferably some kind of civil commitment to medical treatment—to induce them to desist from what is to them often a pleasurable experience'. It is stressed, however, that addicts should be looked upon as patients—they should be 'treated medically and not punitively'. Whether the withdrawal of narcotics should be gradual or abrupt will depend on the individual case, but for addiction to opium, opiates or morphine-like drugs, the Group considered abrupt withdrawal and substitution by rapidly decreasing doses of methadone to be the most effective, simplest and easiest technique.

MILK HYGIENE

Joint FAO/WHO Expert Committee on Milk Hygiene, First Report. World Health Organization Technical Report Series, 1957, No. 124; 54 pages. 3s. 6d. Pretoria: Van Schaik's Bookstore (Pty.), Ltd., P.O. Box 724.

Milk and milk products, if not produced under hygienic conditions, may lead to disease in the human consumers. Milk hygiene measures therefore embrace the health of milk-producing animals, sanitary practices in the production, handling and processing of milk and milk products, treatment for the destruction of pathogens in the milk, and protection against subsequent contamination of the product. In this report, attention is concentrated on hygiene problems relating to cow and buffalo milk and, to a lesser extent, goat milk.

Although the same general principles are basic to dairy hygiene the world over, their application must necessarily vary widely from country to country, because of the broad range of local conditions. The report places emphasis on simple, yet effective measures which will provide the maximum benefit to public health for the effort expended.

At the outset, it is stressed that there can be no assurance about the safety of fluid milk and of many milk products without effective heat treatment of the raw product and subsequent protection against contamination.

After emphasizing the importance of efforts on the farm to protect the milk from external contamination, the *Report* goes on to discuss the major communicable diseases transmissible to Man through milk. The general principle of subjecting all milk destined for human consumption to adequate heat treatment is strongly recommended as a proven safeguard against the transmission of disease.

Attention is drawn to the vexing problem caused by the use of antibiotics in the treatment and control of mastitis in milk-producing animals. It is advocated that milk from cattle given antibiotics by intramammary infusion should be excluded from the general supply for at least the first 2 milkings after therapy and, where possible, for a period of 48–72 hours thereafter.

It is noted that the value of pasteurization for the protection of human health is now amply established. Sterilized milk has the advantage of prolonged keeping qualities; in hot climates especially, this form has great utility.

The direct sale of milk from the farmer to the consumer and the retailing of milk by itinerant pedlars are unhygienic practices that are both deprecated. Nevertheless, the difficulty of enforcing their prohibition in areas where the milk demand exceeds the supply is recognized, and the *Report* confines itself to recommending that, wherever control measures are easier, as in large municipalities, direct sales of this kind should be banned as soon as recognized suppliers are able to meet the needs.

Countries considering the promulgation of milk hygiene legislation are reminded that the legislation adopted should be appropriate to the existing legal structure, the stages of development of the milk industry and milk hygiene practices, the economic status, and the major problems and public health needs of the country. Extreme measures should be avoided. Also, education in the underlying reasons for specific requirements must precede enforcement.

The dairy industry itself has, in some countries, adopted measures designed to control milk quality. Activities of this nature can, it is considered, be a valuable adjunct to official milk hygiene programmes and the full co-operation of the official agency is advocated.

SEARCH FOR A LIVE ANTIPOLIOMYELITIS VIRUS VACCINE*

Vaccination against poliomyelitis is one of the subjects with which WHO has been actively concerned for several years. At the end of 1955, a number of experts convened by WHO discussed the various aspects of this problem and formulated technical opinions[1] to which the health authorities of many countries have frequently referred. At present, WHO is encouraging research in this field in various ways. Studies carried out in Northern Ireland (with the financial support of the National Fund for Poliomyelitis Re-

*With acknowledgments to the *Chronicle of the World Health Organization*, 1957, **11**, 131.

search, the Medical Research Council and WHO) on the application of attenuated live virus vaccine have recently been described.[2] Others have been published in the United States of America.[3, 4] Dr. A. M.-M. Payne summarizes the conclusions reached in these studies in a note which will appear shortly in the *Bulletin of the World Health Organization*,[5] from which the following is taken.

The application on a relatively large scale of an antipoliomyelitis vaccine based on virus inactivated with formalin—the Salk vaccine—marks an advance in public health measures. By means of this vaccine we are able to exercise some control over a dreaded disease, which is increasing in frequency over a large part of the world.

However, it cannot yet be claimed that poliomyelitis has been conquered. The vaccine prevents paralysis in a large proportion of cases, but not in all; the duration of immunity is still unknown, and reinforcing injections may be needed at intervals throughout life. Moreover, some authorities consider that it is desirable for immunity to be maintained by constant contact with inapparent infection prevalent in the environment. However, in economically advanced communities this asymptomatic natural infection can hardly be relied upon for reinforcing vaccinal immunity, since the infection itself is becoming less widespread although clinical disease more often results. Furthermore, the preparation of inactivated virus vaccine involves technical difficulties, it is costly, and the vaccine must be administered by injection.

Theoretically, an attenuated live virus vaccine administered orally would overcome some of these drawbacks. It should confer the same immunity as that given by natural infection without the accompanying risk of paralysis. Many workers are now endeavouring to perfect a vaccine of this type. They have shown that a virus vaccine of diminished virulence for the monkey, when administered to man orally, can promote the formation of antibody without the accompaniment of any appreciable disease symptoms in the person vaccinated. We must now establish which strain could be used in practice, and many problems arise here. As is known, attenuation is not an all-or-none property of the polioviruses; on the contrary, different strains exhibit a whole range of virulence. Their activity may vary from high neurotropism, manifested by paralytic symptoms in chimpanzees fed with the virus, to maximum attenuation, shown by the absence of paralytic symptoms in chimpanzees inoculated intraspinally with the virus—this procedure representing the most severe form of exposure.

It has been found that man is more susceptible than the chimpanzee and monkeys to alimentary infection with poliovirus administered orally, while it is believed that he is the least susceptible of these primates to infection of the central nervous system. Moreover, an experimental vaccine which fails to paralyse the lower primates by intracerebral inoculation, and which produces paralysis in them only when injected intraspinally in large doses, will not paralyse the chimpanzee whatever the route of inoculation. It is very likely that the same holds true for man, and that the attentuated virus taken orally will not affect the nervous system, although giving rise to an immunizing asymptomatic infection in the digestive tract. Poliovirus strains capable of conferring immunity in this way exist. It might therefore be thought that a live virus vaccine is already available; before such a vaccine could be used, however, many difficulties remain to be solved.

LIVE VIRUS VACCINE PROBLEMS

The poliovirus, like most viruses, produces a certain number of variants; the very fact that attenuated viruses exist proves this. Thus, when investigating the value of an attenuated virus for immunization, one must be sure that it will not revert to the virulent state, and that, if some particles are more virulent than others, they will not outgrow the attenuated particles in the digestive tract.

The studies in Northern Ireland already referred to were carried out with two strains of attenuated virus. The first, a type 2 virus, was administered to adults, children and infants; in most, but not all, it brought about the formation of antibody; the immunized persons excreted the virus in the faeces during a month or more. The excreted viruses, unlike the vaccine from which they came, were cytopathogenic in tissue culture and virulent for monkeys when inoculated intracerebrally. This strain was consequently considered to be unsuitable for vaccination in its present form. The second attenuated strain used was a type 1 virus. The formation of antibody was observed in all persons fed, no significant morbid symptoms appeared, and the virus was excreted in the faeces. In some instances the excreted virus appeared rather more virulent than the vaccine virus. This strain has the advantage over the preceding one of being

cytopathogenic, so that it can be obtained as a pure strain from a single particle by Dulbecco & Vogt's method. The virus used in these studies had not been purified in this way. Further studies of this strain using purified material are proceeding.

The problem of 'contagion' must also be considered. It is known that under unsatisfactory hygiene conditions, the virus excreted in the faeces of persons vaccinated with live virus can pass to non-vaccinated people; furthermore, an increase in virulence of the virus after repeated passage cannot be excluded, since the degree of stability which can be expected in an attenuated virus has not yet been established.

Altogether, many problems remain to be solved before the use of an attenuated live virus vaccine which is safe for the individual can be extended to the whole community.

Studies are continuing with the aim of administering the attenuated experimental virus vaccine to larger and larger groups, in order to develop methods of confirming its harmlessness and assessing its effectiveness.

OPSOMMING

Talle probleme wag op oplossing voordat die gebruik van 'n verswakte, lewende virusentstof wat doeltreffend teen poliomiëlitis en veilig vir die individu is, tot die hele gemeenskap uitgebrei kan word.

Studies word voortgesit met die doel om groter en steeds groter groepe met die verswakte, eksperimentele virusentstof te behandel sodat metodes vir die bevestiging van die onskadelikheid daarvan, en die evaluasie van die doeltreffendheid van hierdie entstowwe ontwikkel kan word.

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THE FAMILY DOCTOR*

BY THE SECRETARY GENERAL OF THE WORLD MEDICAL ASSOCIATION

The role of the family doctor, or the general practitioner, has been undergoing constant change for the past 50 years. Originally, nearly all doctors were general practitioners. Then, as medicine became more complicated, and it became impossible for one man to know all there is to know about medicine, the era of specialization dawned. An increasing number of doctors became full-time specialists and a steadily decreasing number became general practitioners. In some areas of the world, notably, the United States, specialization became so common that, in large cities, it became difficult to find a general practitioner. Fortunately, this trend has begun to reverse itself, and during the past 3 years more medical graduates have been turning to general practice.

Lack of general practitioners does not serve in the best interests of the patients. The patient still needs a family doctor, one who can take care of the ordinary ills of the whole family, and who can be relied upon to call in a specialist when necessary. In rural areas there are insufficient patients to attract specialists, and the local doctors must care for all the population, calling in specialists for cases they are unable to handle. They should be given every opportunity to fulfil their missions as family doctors.

The doctor-patient relationship is just as important as ever. The confidence a patient feels in his doctor is often more than half of the battle of overcoming illness. This personal confidence is diminished or lost in casual contacts between patient and specialist. The patient is much closer to the specialist recommended by his family doctor. A full-time hospital doctor has no knowledge of the patient's home surroundings or his family's problems and little knowledge of his economic circumstances.

It has been estimated that about 85% of all illnesses can be cared for by the general practitioner either alone or in consultation with a specialist, and only 15% require the full-time service of a specialist. Nevertheless there has been a tendency in some places to belittle the family doctor and restrict him to home and office visits. Naturally, he should not do things for which he is not qualified, but neither should he be barred from doing

[*Reprinted, by permission of the Editor, from the *World Medical Journal,* 1957, **4,** 304.]

things for which he is qualified. No one would recommend that a general practitioner be allowed to do any procedures for which he is unqualified.

However, to bar a general practitioner from following his patient into the hospital and rendering such care as he is qualified to render, is to my mind, completely ridiculous. There are, of course, occasional incompetents who would attempt anything regardless of the patient; but the vast majority of doctors are interested primarily in the welfare of their patients and do not wish to attempt procedures beyond their ability. The general practitioner should have hospital experience after graduation; he should attend clinics, seminars, post-graduate courses; and keep up with medical literature. To bar him from the hospital builds a wall between him and his clinical progress. Such a policy will end by driving more doctors into specialization and making general medical care unattractive to the best doctors.

Sufficient controls can be established by the profession itself to protect the patient from incompetence. In well-run voluntary hospitals the staff establishes rules and supervises the activities of both specialists and general practitioners. The development of academies of general practice has resulted in the general practitioners setting up standards among themselves. The American Academy of General Practice of the United States requires its members to complete at least 150 hours of accredited post-graduate training every 3 years. And yet, a report discussed in the World Health Assembly, while stressing the importance of the family doctor, concluded by relegating him to an insignificant role.

In active practice myself, I was a certified specialist, but I have always regarded the general practitioner as the very centre of the practice of medicine and essential to the maintenance of the doctor-patient relationship.

(*See also p.* 97)

SKELETAL CHANGES IN ENDOCRINE AND METABOLIC DISORDERS

XVI. IDIOPATHIC OSTEOPOROSIS

W. P. U. JACKSON, M.D., M.R.C.P., D.C.H.

Endocrine Clinic, Department of Medicine, Groote Schuur Hospital and University of Cape Town

While we believe that something is known of the aetiology of other forms of osteoporosis, we occasionally find a severe generalized porosis in a younger person, without any of the known predisposing causes. This so-called idiopathic osteoporosis may be so severe as to be totally disabling. Although generally considered to be a rare disorder, I have records of some 38 patients, half of whom have been seen personally. Of these, 27 are men. In some of the women there is an undoubted relation of exacerbations of the disease to pregnancy and lactation, but it does not appear that these are primary causes.

The clinical features are virtually those of any variety of spinal osteoporosis. The pain may be sudden or gradual in onset, sharp or dull, localized or of root or girdle distribution. Brachial and sciatic pain is, however, very unusual. Forward bending becomes totally restricted, while kyphosis with loss of height ensues (Fig. 1). In addition, I have occasionally been struck with the general ill health and the raised sedimentation rate in the early stages, while pain in the feet or hips has sometimes been the initial complaint. The mean age of onset of symptoms in my series was 27 years for the women and 41 years for the men.

RADIOLOGICAL FEATURES (FIGS. 2–6)

The basic changes in the vertebrae are the same as those described in the post-menopausal porosis group,[1] except that they may be even more severe. In addition to changes in the vertebrae, fractures of the ribs, pelvis, femur, clavicle and sternum have been seen. Such fractures form little callus and heal with difficulty. Porosis is sometimes obvious in other bones, including the long bones, the hands, the feet and the skull. Sometimes the decalcification appears 'spotty' in the skull vault and may simulate myelomatosis. The thoracic cage may become deformed, with diminished

cap city, an increased downward slope of the ribs and the disappearance of rib spaces in the pos ero-anterior view (Fig. 3).

DIFFERENTIAL DIAGNOSIS

A ateral X-ray of the thoracic and lumbar spi e will at once indicate dimineralization an vertebral collapse, thus ruling out renal, gy aecological, gastro-intestinal, pancreatic and purely neurological or muscular disease as the cause of the symptoms.

Ankylosing spondylitis always shows sacro-iliac joint disease and, despite spinal porosis, collapse must be very unusual.

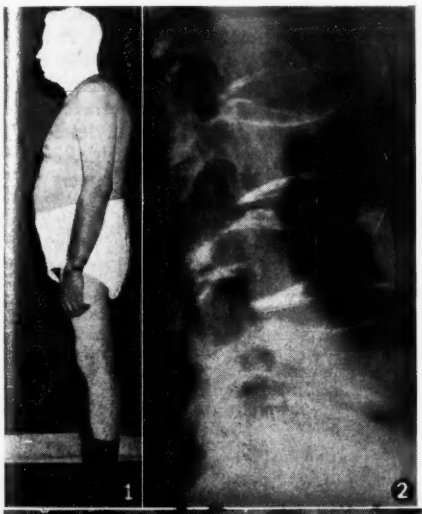
Thyrotoxicosis of the prolonged, 'masked' variety should be ruled out.

Osteomalacia and diffuse osteitis fibrosa are biochemically distinct.

Myelomatosis and carcinomatosis usually show rounded, localized translucencies in bones other than the vertebrae. Plasma proteins and urine should always be examined.

Other causes of true osteoporosis include Cushing's syndrome, hypogonadism, and immobilization.

Finally the 'late' form of *osteogenesis imperfecta* may be difficult to distinguish. There



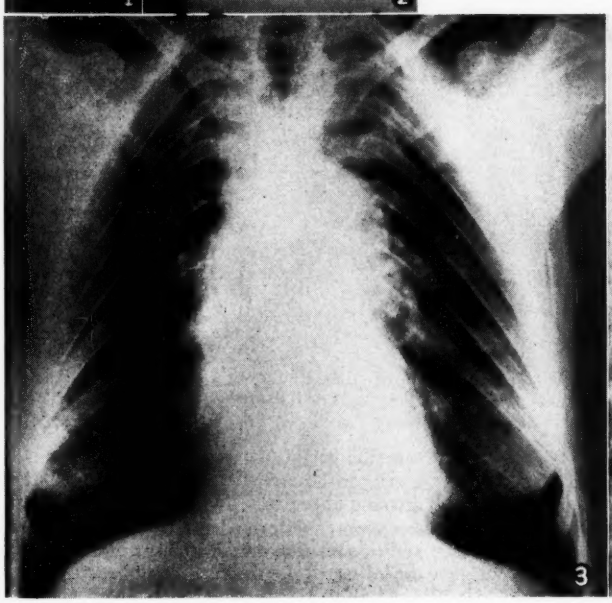
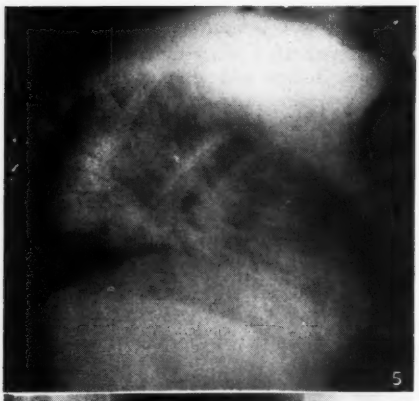


Fig. 1. A moderately early case (aged 36 years), with some thoracic kyphosis and the beginning of a redundant skin fold beneath the nipple.
Fig. 2. Lateral view of the lumbar spine from the same case. Note expansion of the discs, variable vertebral compression, fractures through the inferior and superior plates in various places and herniation of the discs into the bodies of the vertebrae (Schmorl's nodes).
Fig. 3. X-ray of the chest of a coloured woman, aged 36 years showing sloping ribs and isosceles triangle shape.
Fig. 4. X-ray of the lateral thoracic spine of the same case. Note demineralization with expansion of the disc spaces.



may be a family history and there may be deep blue sclerae. Other bones may be grossly affected and the spinal picture is usually more uniform.

TREATMENT

Apart from judicious spinal support and abstention from forward bending, there is really nothing of value. Sex hormones are not usually helpful, because the patients have enough of their own. If a high protein diet with additional vitamin D and calcium is used, a careful watch must be kept on the urinary calcium in case it rises to the dangerous point of stone formation. Multiple intravenous infusions of human albumin or, of lesser value, of plasma are not really practicable, but may be tried when the disease is in a very severe stage.

OPSOMMING

Aandag word gevestig op algemene osteoporose by ouer mense as 'n gewone en belangrike toestand.

Die etiologie word oorweeg, en die radiologiese voorkoms word taamlik breedvoerig beskryf, veral die veranderings wat by laterale X-straalondersoek in die werwelliggame aangetref word.

Die behandeling slaag dikwels veel beter as wat algemeen besef word.

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Fig. 5. A more severe case in a young woman with an extraordinarily gross kyphosis.
Fig. 6. An X-ray of the feet of the same case, showing demineralization with featureless bone. (Dr. Fuller Albright's case).

DWARFISM, OSTEOCHONDRITIS JUVENALIS AND OSTEOCHONDRITIS DISSECANS

HARRIS JACKSON, L.R.C.P., M.R.C.S., D.M.R.
Johannesburg

The report of rare combinations of abnormalities leads to the recognition of syndromes and eventually to therapy. The triad of drawfism, osteochondritis juvenalis of the spine, and osteochondritis dissecans of the joints was described by White,[1] who recorded 3 cases, apparently the only ones in which the combination has been recognized. The present case was encountered a month before White's account appeared. No biochemical investigations were performed, but it presented several additional features which make it worth recording.

Clinical History. A girl, aged 15½ years,

complained of stiffness and pain in the elbow joints for about 1 year, and of abnormality of the hips from birth. She was born at full term, weighing 7½ lb. Teething may have been slightly retarded, but she talked normally. When she began to walk (at 2 years) bilateral congenital dislocation of the hips was diagnosed, but the condition was not treated because of a generalized body weakness (? hypotonia, ? ligamentous laxity).

Menses began at 13 years and were scanty and irregular.

Family History. The parents are both well above average height, and her brother, aged 20 years, is 6 feet 3 inches.

Examination. Height, 4 feet 1¼ inches; moderately obese. Power, tendon reflexes and sensation were normal. There was a marked lumbar lordosis with a moderate dorsal kyphosis, but movements of the whole spine were very full. The lateral ligaments of the knees and elbows, the cruciate ligaments of the knees, and the capsules of the shoulder joints were lax. The hips were dislocated but freely mobile, with external rotation to 90°. There was bilateral genu valgum. The hands, wrists, feet and ankles were normal. There was limitation of flexion and extension of both elbow joints, more marked on the right.

Radiological Investigation: Spine. There was spina bifida of the 7th cervical, 1st dorsal, 5th lumbar and 1st sacral vertebrae, with osteochrondritis juvenalis of the 5th to 8th dorsal vertebrae (typically fragmented and irregular ring apophyses, anterior wedging and vertical flattening (Fig. 1)). In the lumbar region the lordotic curve was exaggerated, and the anteroposterior diameters of the vertebral bodies were rather short (Fig. 2).

Pelvis. The femoral heads were dislocated and they articulated with the iliac bones, though without any evidence of pseudarthroses. The femoral heads and the acetabula were underdeveloped. The pelvis was tilted and oval (Fig 3).

Joints. Typical osteochondritis dissecans was demonstrated in the lateral femoral condyles (Figs. 4A, 4B). The left elbow was normal. In the right elbow the head of the radius was widened and there were elongated subcortical pseudocysts (Fig. 5). The capitellar articular surface of the radius was irregular, consistent with the dissection of a fragment therefrom.

The Hands. These showed no abnormality apart from somewhat elongated fingers (Fig. 6), and the wrists were normal.

DISCUSSION

In Table 1 (p. 96) the significant clinical and radiological features of this case are compared with those of White's case. His showed no associated congenital abnormalities,[2] but otherwise this case clearly falls into the group. It is indeed unfortunate that she was not investigated biochemically, as White postulated that puberty was the active stage of this disease,

Fig. 1. Osteochondritis juvenalis of the dorsal spine. The arrows at A point to the fragmented, irregular ring apophysis, with a Schmorl's node.

Fig. 2. Lumbar vertebrae with short anteroposterior diameters.

Fig. 3. Congenital dislocation of the hips. Spina bifida of 5th lumbar and 1st sacral vertebrae (arrows).

and there may have been significant changes here. The biochemical abnormalities in White's cases are tabulated in Table 2 (p. 97). White pointed out that cases of multiple osteochondritis dissecans, and also of familial osteochondritis dissecans with dwarfism have been reported before, so that the syndrome may be commoner than at first appears.

The features common to White's cases and this case are: dwarfism, osteochondritis juvenalis, osteochondritis dissecans, and some mild hypogonadism. His cases showed biochemical abnormalities. This case had associated congenital abnormalities.

SUMMARY

Attention is directed to a syndrome of dwarfism, osteochondritis juvenalis and osteochondritis dissecans.

A case showing these features with other congenital abnormalities is presented.

OPSOMMING

'n Sindroom van dwergisme, osteochondritis juvenalis van die ruggraat, en osteochondritis dissecans van die gewrigte, geassosieer met hipogonadisme en biochemiese veranderings, is deur White beskryf.

'n Beskrywing word verstrek van 'n dergelike geval wat egter ook die volgende addisionele kenmerke geopenbaar het: spina bifida, oorerflike ontwrigting van die heupe, en losheid van die gewrigte.

I am indebted to Mr. G. T. du Toit for his clinical notes on this case and for permission to submit this report for publication.

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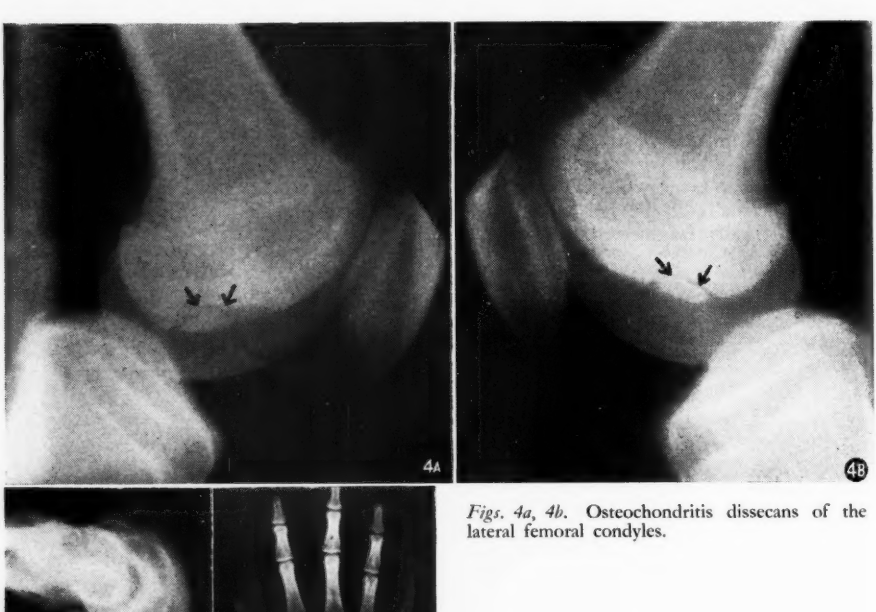

Figs. 4a, 4b. Osteochondritis dissecans of the lateral femoral condyles.

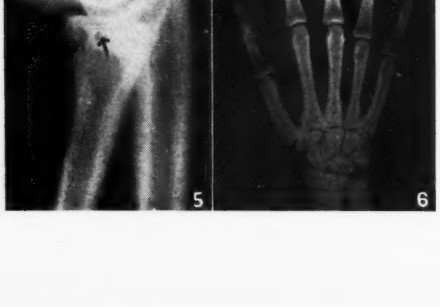

Fig. 5. Pseudocystic changes in the radial head.

Fig. 6. Somewhat elongated fingers, not amounting to true arachnodactyly.

TABLE 1

	White's Cases			*Present Case*
Sex	Female	Male	Female	Female
Age	28	21	21	15½
Age at Onset of Joint Symptoms	Puberty	Puberty	Puberty	Puberty
Height	4′ 4″	4′ 6″	4′ 5″	4′ 1″
Family History	Negative	Negative	One cousin: short stature and joint pains..	? Negative
Family Height	Average	Above average	Average	Above average
Spinal Osteochondritis Juvenalis	Present	Present	Present	Present
Joints Affected by Osteochondritis Dissecans	Right knee Right hip	Right elbow Both knees	Both elbows Right knee Right ankle	Both knees Right elbow
Secondary Sexual Characteristics *Menses*	Poor ?	Poor Not applicable	Late Scanty, irregular	? Normal Scanty, irregular
Associated Congenital Abnormalities	None	None	None	Lax ligaments, spina bifida, dislocation of hips

TABLE 2 (WHITE'S CASES)

Age and Sex	Female 28	Male 21	Female 21
Serum protein in g. per 100 ml.	7·9	6·8	Normal
Serum albumin in g. per 100 ml.	2·8	3·1	Normal
Serum globulin in g. per 100 ml.	5·1	3·7	Normal
Plasma inorganic phosphorus in mg. per 100 ml.	5·2	5·6	4·6
Serum potassium in m Eq. per litre	5·8	—	Normal
Serum calcium in m Eq. per litre	3·4	5·4	Normal
Glucose tolerance curve	Flat	Flat	—
Endometrial biopsy	Underdevelopment	Not applicable	Cystic pattern
Serum total fatty acids (fasting) in mg. 100ml. as stearic acid	—	2340	568
B.M.R.	−4%	Normal	Normal
Renal function	Normal	Normal	Normal

THE GENERAL PRACTITIONER *

BY THE EDITOR OF THE WORLD MEDICAL JOURNAL

Elsewhere in this issue of *The Journal* are several statements on the general practitioner and his activity in various parts of the world. In view of the often repeated question 'Where is the family doctor we used to see?' some people have assumed the general practitioner

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has almost disappeared in some countries. Actually he still is very much in evidence. In fact, he is receiving not only renewed recognition but also is assuming increasing responsibilities. Unfortunately, however, this seems to be occurring only in those parts of the world where the medical profession remains sufficiently free of government domination to permit a continuation of the physician–patient relationship on which the successful practice of medicine must be built. Without this friendly relationship patients run the risk of becoming merely numbers on a waiting list, and doctors may become practically clerks and technicians.

There probably is no country in which the medical profession, if there is one, has not undergone dramatic changes in the type of practice it offers and the conditions under which it practises. Modern therapy alone has imposed some remarkable changes. In addition, the public has become so health conscious and so eager for medical news wherever newspapers and radios exist, that the doctor is confronted daily with questions formerly unknown. But, of great importance, has been the desire of men and women in governments to provide medical care either because they thought it was the responsibility of the government or because they were interested in the votes which such programmes might bring. Too often the political opportunist has asked 'How many votes will this bring?' when he should have asked 'What is the best way to serve the health needs of my country?' Also important, of course, have been the development of many health aids such as improved transportation, voluntary insurance plans, and many other factors. But dominant in the picture to-day is the spectre of government-controlled medical care.

Where does the general practitioner fit in this picture? To-day he still is the family doctor. To-day he still is at times the family counsellor. To-day, more than ever before, he is the divining rod by which the usefulness of medical specialism can be utilized to its fullest extent. Unless there is someone to point the way for the individual need, there can be little hope that the sick person or the one in need of medical counsel can determine what kind of specialist, if any, he needs. And, of great importance, the general practitioner to-day can rise to new leadership in the affairs of his community when questions of health and good citizenship arise. He is trained to provide leadership, and he can provide it if his conscience and his actions fit those of the kind of man the public envisions in its concept of the family doctor.

In many countries there has been a swinging of the pendulum in recent years between specialization and general practice. In fact, in some there have been fears expressed even by doctors that the day of the specialist is gone. But the pendulum is swinging back into its proper place, which means there is developing good balance between specialists and general practitioners. Problems have arisen in teaching centres, in hospitals, and elsewhere, but they are being resolved. Only patience is needed to assure a satisfactory outcome. But in the meantime there is growing in some countries a disparaging attitude by government officials towards anyone who is not a specialist. Those officials may be blind to medical needs, or they may simply be bureaucratically inclined, but whatever the motivation it has resulted in the general practitioner becoming comparatively unimportant in these countries. At the same time, and this is significant, the private practice of medicine has been disappearing. But this is to be expected when medical care is not provided on the basis of needs but political chicanery.

Thus to-day there is a need for every doctor to reappraise the role of the physician in the supplying of medical care. If he does this carefully and then supports actively his conclusions and convictions, he will see that there is a place for all medical practitioners who hold qualifying medical degrees, but that the general practitioner is the foundation on which medical care is built. He also will see that unless there is friendly and respectful recognition of the role of each doctor, there will be increasing control by governments over the medical profession and their patients. And it should also be apparent to him that these facts should be made known to his patients and to others, as these problems concern their own medical future. The interest of the medical profession in the techniques by which medical care is supplied is not a selfish one but is for the benefit of patients. This should be made clear to everyone that there can be no possibility of misunderstanding.

(*See also p.* 91)

TES-TAPE (LILLY)—AN ASSESSMENT OF SENSITIVITY AND SPECIFICITY

M. H. LELLO

Biochemistry Department, Pathology Laboratory, Edendale Hospital, Pietermaritzburg

In recent years, several new methods for determining the concentration of 'sugar' in urine have been devised to overcome the pitfalls of the older Benedict and Fehling methods. Of the newer methods, Tes-Tape (Lilly) was investigated in this laboratory. The purpose of these investigations was to assess the sensitivity of the test from the quantitative point of view, the specificity of the test with regard to sugars other than glucose, and the effect of other substances (which may be found in urines from patients under treatment) on the test.

The results of these investigations are therefore reported under 3 main headings: *Sensitivity, Specificity* and *Effects of Other Substances.*

1. SENSITIVITY

Glucose of known varying concentration was added to pooled normal urine. The persons from whom the urine specimens were obtained were receiving no medication and were on an average normal diet. The glucose concentrations were measured with Tes-Tape using the manufacturer's directions. The results are shown in Table 1. The values obtained were in most cases the same as the actual glucose concentrations.

TABLE 1: GLUCOSE ADDED TO POOLED NORMAL URINE, AND THE CONCENTRATION ASSESSED WITH TES-TAPE.

Concentration	0·1%	0·25%	0·5%	1·0%	2·0%	3·0%
Reading	±0·1%	0·25%	0·5%	>0·5%	2·0%	2%+

2. SPECIFICITY

Lactose and fructose were added to pooled normal urine and the resulting solutions tested with Tes-Tape. The results for both these sugars were as follows:

Concentration of Added Sugar	0·1%	0·25%	0·5%	1·0%	2·0%	3·0%
Reading	Nil	Nil	Nil	Nil	Nil	Nil

It is thus demonstrated that these 2 commonly occurring sugars do not interfere with the test.

3. EFFECTS OF OTHER SUBSTANCES

Other substances which may be found in urines from patients under treatment and included in this series of investigations may be divided into 3 main groups:

(a) Metabolic products common to diabetics;

(b) Drugs and their derivatives;

(c) Substances which may contaminate the specimen at the time of collection.

Reactions with these substances are listed in the above order.

(a) Ketone (acetone) added to pooled normal urine—no reaction; Ketone (acetone) and 2% glucose added to pooled normal urine—reading of 2% with Tes-Tape;

(b) Free soluble sulphonamide added to pooled normal urine—no reaction.

Urine from normal subject excreting acetylated derivatives of soluble sulphonamide—no reaction;

Six per cent Dextran solution—no reaction;

Urine from patient on intravenous Dextran infusion—no reaction 3 hours after infusion;

Urine from a normal subject on oral saccharin—no reaction;

Urine from a normal subject on oral hexamine—no reaction;

Urine from a normal subject on oral hexamine (single dose, 9 grains), with 1% glucose added—marked inhibition of reaction—a reading of 0.25% obtained.

This last reaction, due to the inhibition of the enzymatic reaction of the tape by formaldehyde de[illegible]d from the hexamine, led to further investigations with enzyme-inactivating substances. Mercury salts added to pooled normal urine containing glucose gave complete inhibition of the reaction, and glucose added to urine from patients on mercurial diuretics showed only slight reaction with Tes-Tape. The possibility of enzyme-inactivating substances contaminating urine specimens at the time of collection was also investigated. They are listed below:

(c) *Formaldehyde* is widely used in wards as a disinfectant and may contaminate urine receivers. When this substance was added in approximately 1% concentration to a normal urine specimen to which glucose had been

added, no reaction resulted when tested with Tes-Tape.

Fluoride. Sodium fluoride is used in some insect poisons. When added to a normal urine specimen containing added glucose and tested with Tes-Tape, only a weak reaction was obtained.

CONCLUSIONS

Tes-Tape (Lilly) has been found to be reliably sensitive in the rough quantitative estimation of urinary glucose content. It is specific for the detection of glucose, and gives no reaction with either lactose or fructose.

The test is not affected by sulphonamides or their derivatives, or by ketones. Care should be exercised when performing the test on urines from patients receiving hexamine and mercurial diuretics and great care should be exercised in the collection of the specimen when formalin has been used in the wards.

Because of the simplicity of the test, its sensitivity and specificity, and the brief time required to perform the test, Tes-Tape (Lilly) should prove useful not only to the general practitioner but also to hospitals and laboratories. In wards and out-patients' departments of hospitals, where much time is taken with the older methods of urine sugar tests and false positive reactions are numerous, this test should be of great help and save the hospital laboratory much time (and expense).

OPSOMMING

Daar is bevind dat Tes-Tape (Lilly) betroubaar gevoelig is vir die rowwe kwantitatiewe berekening van die glukose-inhoud van die urine. Dit is spesifiek vir sover dit die ontdekking van glukose betref, en het geen reaksie òf met laktose òf met fruktose nie.

Die toets word nie geaffekteer deur sulfonamiede of hul derivate, of deur ketone nie. Sorg moet aan die dag gelê word wanneer die urine van pasiënte wat heksamien- of kwikhoudende urineafskeimiddels ontvang, getoets word, en die versameling van die monsters moet veral met groot sorg uitgevoer word in gevalle waar formalien in die sale gebruik is.

Met die oog op die eenvoudigheid, die sensitiwiteit en die spesifisiteit van die toets en die kort tydjie wat nodig is om dit uit te voer, behoort Tes-Tape (Lilly) van waarde te wees nie alleen vir die algemene praktisyn nie, maar ook in hospitale en laboratoriums. In sale en in die buitepasiëntafdelings van hospitale, waar veel tyd in beslag geneem word deur die ouer metodes om die urinesuiker te toets en waar valse positiewe reaksies talryk is, behoort hierdie toets van groot waarde te wees en veel tyd en onkoste vir die hospitaallaboratorium te bespaar.

Thanks are due to Dr. H. D. Tonking, Provincial Pathologist, Natal Provincial Administration, for permission to submit this article for publication.

Eli Lilly & Company supplied the Tes-Tape.

NOTES AND NEWS : BERIGTE

Dr. Walter F. Scott has commenced practice as a specialist physician at 204, Lister Building, Jeppe Street, Johannesburg. *Telephone*: 22-7484.

* * *

NUTRITION SOCIETY OF GREAT BRITAIN

The Nutrition Society will hold a symposium on *Applied Nutrition* at Queen Elizabeth College, Campden Hill Road, London, W.8, on Friday, 11 July 1958.

* * *

BACK NUMBERS OF IMPORTANT OVERSEAS PUBLICATIONS

The Johnson Reprint Corporation, 111, Fifth Avenue, New York 3, New York, U.S.A., have available back numbers (from 1909 onwards) of the *Journal of Pharmacology and Experimental Therapeutics* as well as of the *Quarterly Cumulative Index Medicus* (1949 onwards).

Those interested in obtaining any of these volumes should write either to the American address, or to the Johnson Reprint Corporation, c/o Academic Books Limited, 129, Queensway, London, W.2, England.

Mr. Kurt Colsen, of Johannesburg, has left on a short visit overseas. His itinerary includes visits to Rome and to Innsbruck. He has been invited to lecture at the Surgical Clinics of both these Universities. He will also visit other European postgraduate centres.

Mr. Colsen (who is accompanied by Mrs. Colsen) will be back in Johannesburg at the end of March.

* * *

CLINICAL LECTURES

All general practitioners are invited to attend the following lectures in Johannesburg:

Monday, 24 February: Prof. R. M. Janes, Emeritus Professor of Surgery, University of Toronto, will lecture on *Cancer of the Breast—A Reassessment*, at 5 p.m. in the Harveian Lecture Theatre.

Tuesday, 25 February: Invitation Lecture by Prof. Janes to the Southern Transvaal Branch of the Medical Association on *Post-Operative Complications* at 8 p.m., at Medical House.

Wednesday, 26 February: Prof. Janes will lecture to Medical Students on *Tumours of the Parotid Gland* at 12 noon in the Vesalian Lecture Theatre.

Prof. Janes will give a Public Lecture on the *History of Medical Education in Toronto* at 5 p.m. in the Harveian Lecture Theatre.

Thursday, 27 February: Prof. Janes will lecture on *Carcinoma of the Lung—Certain Problems in Diagnosis*, at 8 p.m. in the Harveian Lecture Theatre.

* * *

FOURTH WORLD ASSEMBLY OF THE ISRAEL MEDICAL ASSOCIATION

This meeting will be held in Israel from 12-24 August 1958. The scientific programme will deal with the special medical problems of integrating large numbers of immigrants into the community.

Visits to hospitals and clinics will be arranged and members of the Assembly will be able to see how Israel's medical problems are being tackled and solved.

Carefully prepared itineraries have been drawn up to enable participants to visit the whole country. This programme will include visits to historical sites, settlements and branches of industry and agriculture. Special visits will also be arranged to illustrate the activities of the Army and the Navy.

A varied and interesting programme of social arrangements will bring visitors into close contact with one another, as well as with the local members of the IMA.

In addition, there will be organizational meetings of Non-Resident Fellows and the Israel Association of the History of Medicine and Science.

This Fourth World Assembly of the IMA coincides with the festivities of the foundation of the state of Israel. Visitors to Israel will therefore be able to participate in the extensive celebrations being prepared by the Israeli Government during this year of jubilation.

To ensure adequate touring and other arrangements, intending participants should write immediately to: Dr. Cyril Adler (Honorary Secretary), Israel Medical Association (Non-Resident Fellowship Project—South Africa), 701, Ingram's Corner, Twist Street, Johannesburg, *or* Dr. A. I. Goldberg, National Mutual Buildings, Church Square, Cape Town.

* * *

IN MEMORIAM: DR. A. J. EWINS, F.R.S.

THE CO-DISCOVERER OF SULPHAPYRIDINE

Arthur James Ewins, for many years Director of Research at May & Baker Ltd., died, after a long illness, at Bedford on Christmas Eve. He was born at Norwood in 1882 and was educated at Alleyn's School, Dulwich. In 1899, he joined the staff of the Wellcome Physiological Laboratories at Brockwell Hall at Herne Hill and worked under the late Prof. George Barger, of thyroxine fame. He graduated from the Chelsea Polytechnic in 1906, receiving his B.Sc. with Honours and in 1914 he was awarded his D.Sc. Subsequently he worked at Brockwell Hall with Nobel prize-winner Dr. (later Sir Henry) Dale on acetylcholine (which he had isolated from ergot in 1914) and choline esters. These very important biochemical and physiological investigations formed the beginning of a long and valued friendship between Ewins and Dale and when Dale joined the Medical Research Committee (War Council) in 1914, Ewins went with him and continued his chemical and biological research.

After some investigations into methods of preparation of German drugs—the supply of which was suddenly cut off by the War—Ewins joined May & Baker Ltd. at Battersea early in 1917 and for some years he undertook the management of the production side of the factory. During this time he was concerned with the manufacture of neoarsphenamine at the Bell Lane, Wandsworth Works of May & Baker. This, coupled with his earlier biochemical background, helped to arouse his interest in chemotherapy, which lasted throughout his life. He gradually developed the analytical and research laboratories and transferred his activities, little by little, to research. Under his guidance, a flourishing research organization grew up and he was eventually appointed to the Board of Directors as Director of Research. Numerous publications in the *Journal of the Chemical Society* bear testimony to the activities of his research team in the field of organic arsenicals and other chemotherapeutic substances. He also published many papers in the *Biochemical Journal* and the *Journal of Physiology*.

Perhaps his best-known achievement was the discovery in 1937, with his colleague Phillips, of sulphapyridine or M & B 693, the first chemotherapeutic agent for the treatment of pneumonia. This was followed, in 1938, by the synthesis of sulphathiazole by his co-worker G. Newbery. After this came the discovery of the aromatic diamidines which are curative for trypanosomiasis and leishmaniasis. One of the best known of these, pentamidine, is widely used for the protection of humans against African Sleeping Sickness.

In 1943 Ewins was elected a Fellow of the Royal Society. He continued to direct the research organization which he had built up until his retirement in March 1952.

In the 34 years of his active research life, Ewins formed many friendships, both with his colleagues in the company and with those with whom he came into contact in the scientific world. A man of quiet temperament, but of firm decisions, his pleasures were working in his garden, reading and motoring.

PREPARATIONS AND APPLIANCES

CHLOTRIDE*

A NON-MERCURIAL DIURETIC (SALURETIC)

Chlotride Chlorothiazide (6-chloro-7-sulfamyl-1,2,4-benzothiadiazine-1, 1-dioxide) is an exceptionally potent, orally effective, non-mercurial diuretic agent. It represents a new approach to diuretic therapy. Since the principal action of *Chlotride* is a marked enhancement of the excretion of sodium, chloride and water, it has been designated a saluretic agent. This new compound achieves a profound electrolyte and water diuresis without the attendant toxic effects and other disadvantages peculiar to the mercurials and certain other diuretic agents.

Owing to its saluretic pattern of effect and maximal oral potency and efficacy, *Chlotride* is ideally applicable both in initiating diuresis and in maintaining the oedema-free state in patients with con-

*Also known in the United States as *Diuril*.

gestive failure and other oedema-producing conditions and is often effective in patients refractory to mercurial and other diuretic agents. This diuretic compound is a unique drug for a number of reasons:

1. *Chlotride*, when properly administered, causes practically no disturbance of the electrolyte balance of the body because:

It has a high order of activity with respect to sodium and chloride excretion.

The excretion of bicarbonate is minimal. Wide experience with the use of *Chlotride* has demonstrated that metabolic acidosis as a complication of diuretic therapy with this compound is most unlikely.

Potassium is excreted to a much smaller extent than are sodium and chloride. Potassium excretion is also relatively less than with classic carbonic anhydrase inhibitors. As a result, excessive loss of potassium usually does not occur when *Chlotride* is administered properly.

2. *Chlotride* is an orally effective, non-mercurial diuretic agent. It is the most potent and consistently effective oral diuretic presently available.

3. *Chlotride* may be characterized as a broad-spectrum diuretic, based on its enhancing effect on sodium excretion at various dosage levels. In lower doses the effect of *Chlotride* is comparable to that of the classic carbonic anhydrase inhibitors, at mid-dose levels to that of an oral mercurial, and at higher doses to that of a parenteral mercury compound.

4. *Chlotride* is well tolerated. It has a high therapeutic index and low inherent toxicity. Gastro-intestinal symptoms such as nausea, vomiting and diarrhoea are reportedly rare, even at maximal therapeutic dosage levels.

5. This saluretic agent can be administered even in the presence of severe cardiac, renal or hepatic disease.

6. Onset of action following oral administration is rapid (within 2 hours) and the duration of effect moderate (6–12 hours).

7. The diuretic effectiveness of *Chlotride* does not decrease with repeated daily administration in single or multiple doses. This continued effectiveness operates until fluid and electrolyte retention has been corrected. The early refractoriness characteristic of the classic carbonic anhydrase inhibitors does not occur.

Dosage: Detailed literature on request.

How Supplied: *Chlotride* 0.5 g. tablets in bottles of 25 and 100.

Manufacturer: Merck Sharp & Dohme International Division of Merck & Co., Inc.

Enquiries: P.O. Box 5933, Johannesburg.

ARCOFAC

ARMOUR CHOLESTROL-LOWERING FACTOR

Petersen Limited, Cape Town and Johannesburg, announce the introduction to the Union of South Africa of *Arcofac* (Armour-Cholesterol-Lowering Factor), a concentrated, nutritional, dietary supplement for the prophylactic treatment of atherosclerosis, and manufactured by The Armour Laboratories, Kankakee, Illinois, America.

Arcofac has the following formula:

Each tablespoonful (15 c.c.) of the emulsion contains:

Linoleic acid*	6.8 g.
Vitamin B6	0.6 mg.
Mixed tocopherols (Vitamin E) ...	11.5 mg.

(Sodium benzoate as preservative)

*Derived from safflower oil which contains the highest concentration of unsaturated fatty acids of any commercially available vegetable oil.

Atherosclerosis: Atherosclerosis is not a new disease, its presence having been detected in mummies over 5,000 years old. The American population is almost universally affected. Atherosclerosis has been demonstrated in early life and in young adults as well as in older persons. It is not an inevitable accompaniment of growing old, as was formerly believed. It is, however, only during the past 45 years that appreciable studies have been made in the understanding, prevention, and treatment of this disease.

Cholesterol: *An Important Factor.* Although the exact role of cholesterol in the development of atherosclerosis is yet unknown, enough evidence has been accumulated to leave little doubt about its importance. Investigators agree that lowering high cholesterol blood levels is highly important.

Equally important may be the prevention of elevated cholesterol blood levels.

Rationale of Therapy: Blood cholesterol levels can be controlled by the following means:

1. *Severe Dietary Restriction.* Blood cholesterol levels can be lowered by drastically limiting the intake of foods containing cholesterol and highly saturated fatty acids. Such severe dietary restriction, however, is difficult to maintain, as the diet becomes unpalatable, monotonous, and may even be nutritionally deficient.

2. *Major Change of Diet.* Vegetable oils rich in essential (unsaturated) fatty acids predictably reduce elevated blood cholesterol levels. Changing the diet so that it includes adequate amounts of such unsaturated fatty acids will lower high serum cholesterol levels. These oils, however, cannot be taken in adequate amounts for any great lengths of time.

3. *Normal Diet with Arcofac.* The apparent answer to this problem is a palatable, concentrated, nutritional, dietary supplement of unsaturated fatty acids which will permit the patient to stay on a normal balanced diet. The Armour organization, after 7 years of clinical evaluation, has developed such a nutritional supplement which is now offered in *Arcofac*.

Each ingredient of *Arcofac* as shown in the above formula has the following features:

(*a*) A high concentration of linoleic acid—an essential (unsaturated) fatty acid that lowers blood cholesterol.

(*b*) Vitamin B6—necessary for the conversion in the body of linoleic acid to the primary essential fatty acid, arachidonic acid.

(*c*) Vitamin E—tocopherols are powerful antioxidants and protect linoleic acid against loss of potency.

Dosage: (*a*) *Prophylactic.* If the blood cholesterol is within normal limits but the individual is likely to develop hypercholesterolaemia, give 1 to 2 tablespoonfuls of *Arcofac* once daily. Check the blood cholesterol levels every 2 to 6 months.

(*b*) *Therapeutic.* If hypercholesterolaemia is present, give 2 to 8 tablespoonfuls daily. It is

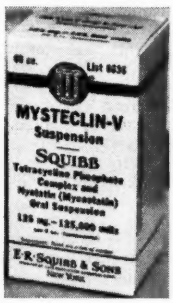
advisable to begin with high dosage in order to bring about a more rapid reduction of cholesterol levels. Then reduce the dosage to the maintenance level (usually accomplished in 2 to 4 weeks). Blood cholesterol levels may be checked every 2 to 4 weeks until the maintenance level is established.

Presentation: Bottles of 12 oz.

MYSTECLIN–V SUSPENSION

Squibb Laboratories announce the introduction of *Mysteclin–V* Suspension, a pleasant-tasting cherry-flavoured oil suspension containing tetracycline phosphate complex equivalent to 125 mg. tetracycline hydrochloride and 125,000 units nystatin per 5 c.c. teaspoonful, supplied in 2–oz. bottles.

The new phosphate complex of tetracycline, as supplied in *Mysteclin–V*, provides the same broad-spectrum effectiveness of the older tetracycline hydrochloride, but produces substantially faster and higher initial blood concentrations. This new form of the most widely prescribed of all broad-spectrum antibiotics will prove to be particularly useful for a prompt attack against the common bacterial infections.



Because the broad-spectrum antibiotics disturb the bacterial equilibrium of the intestinal tract, an overgrowth of the fungus *Candida* (*Monilia*) *albicans* may frequently occur. Such overgrowth can give rise to troublesome and even serious clinical manifestations. For this reason, *Mysteclin–V* Suspension contains *Mycostatin*, the first safe antibiotic with specific antifungal activity which acts as an effective defence against this complication of antibiotic medication.

Supplies of *Mysteclin–V* Suspension are available from all wholesale and retail sources.

Manufacturers: Squibb Laboratories (Pty.) Limited, P.O. Box 9975, Johannesburg.

PREPARATE EN TOESTELLE

CHLOTRIDE*

'N NIE-KWIKHOUDENDE URINE-AFSKEIMIDDEL

Chlotride Chlorotiasied (6-chloro-7-sulfamiel-1,2,4-bensotiadiasien-1, 1-dioksied) is 'n buitengewoon kragtige, mondeling doeltreffende, nie-kwikhoudende urine-afskeimiddel. Vir die geneesheer is dit 'n heeltemal nuwe benadering van die onderwerp van urine-afskeidingsterapie. Aangesien die vernaamste effek van *Chlotride* 'n opvallende verhoging van die afskeiding van natrium, chloried en water is, word dit soms ook 'n saluretiese (soutafskeidings-) middel genoem. Hierdie nuwe samestelling bewerkstellig 'n diepgaande elektrolitiese en waterdiurese sonder die meegaande toksiese effekte en ander nadele wat aan kwikhoudende en sekere ander urine-afskeimiddels verbonde is.

Weens *Chlotride* se saluretiese effek en sy maksimale mondelinge kragtigheid en doeltreffendheid, is dit ideaal geskik nie alleen om urine-afskeiding van stapel te stuur nie, maar ook om 'n edeemvrye toestand te handhaaf by pasiënte met kongestiewe versaking en ander edeemproduserende toestande, en dit is dikwels ook doeltreffend vir die behandeling van pasiënte wat hardnekkige weerstand teen kwikhoudende en ander urine-afskeimiddels bied. Hierdie urine-afskeisamestelling is 'n unieke middel en wel om die volgende redes:

1. As *Chlotride* behoorlik toegedien word, veroorsaak dit feitlik geen versteuring van die elektrolitiese ewewig van die liggaam nie omdat:

Dit 'n hoë orde van aktiwiteit ten opsigte van natrium- en chloried-afskeiding het.

Die afskeiding van bikarbonaat minimaal is. Uitgebreide ondervinding met die gebruik van *Chlotride* het aangetoon dat metaboliese asidose as 'n verwikkeling van urine-afskeidingsterapie hoogs onwaarskynlik met hierdie samestelling is.

Kalium word in 'n veel geringer mate as natrium en chloried afgeskei. Kaliumafskeiding is ook betreklik minder as met die klassieke koolsuuranhidrase-belemmeraars. Ten gevolge hiervan is daar in die reël geen buitensporige verlies van kalium as *Chlotride* behoorlik toegedien word nie.

2. *Chlotride* is 'n mondeling doeltreffende nie-kwikhoudende urine-afskeimiddel. Dit is die kragtigste en mees konsekwent doeltreffende urine-afskeimiddel wat vandag verkrybaar is.

3. *Chlotride* kan bestempel word as 'n breëspektrumurine-afskeimiddel gesien die verhogingseffek wat verskillende dosispeile op die afskeiding van natrium het. In kleiner dosisse kan die effek van *Chlotride* vergelyk word met dié van die klassieke koolsuuranhidrase-belemmeraars; teen middelmatige dosisse met dié van 'n mondelinge kwikhoudende urine-afskeimiddel, en teen groot dosisse met dié van 'n parenterale kwikhoudende samestelling.

4. *Chlotride* word goed verdra. Dit het 'n hoë terapeutiese indeks en 'n lae inherente toksisiteit. Simptome van die spysverteringskanaal soos mislikheid, braking en diarree is seldsame verskynsels, selfs wanneer die maksimale terapeutiese dosis toegedien word.

5. Hierdie saluretiese middel kan toegedien word selfs waar die pasiënt aan hart-, nier- of lewerkwaal ly.

6. Na mondelinge toediening word die uitwerking daarvan gou-gou gevoel (binne 2 uur). Die effek is van middelmatige duur (6–12 uur).

7. Die urine-afskeidingsdoeltreffendheid van *Chlotride* verminder nie na herhaalde daaglikse toediening in die vorm van enkele of veelvuldige dosisse nie. Hierdie voortdurende doeltreffendheid bly van krag totdat vloeistof- en elektrolitiese retensie verbeter is. Die vroeë weerspannigheid wat so kenmerkend is van die klassieke koolsuuranhedrase-belemmeraars kom nie voor nie.

Dosis: Breedvorige leesstof is op aansoek verkrygbaar.

Hoe dit Verskaf word: *Chlotride*, tablette van 0.5 g., in bottels van 25 en 100.

Fabrikante: Merck Sharp & Dohme International, 'n Afdeling van Merck & Co., Inc.

Navrae: Posbus 5933, Johannesburg.

*Ook bekend in die Verenigde State as *Diuril*.

ARCOFAC

ARMOUR-CHOLESTEROL-VERMINDERINGSFAKTOR

Petersen Beperk, Kaapstad en Johannesburg, kondig die beskikbaarstelling van *Arcofac* (Armour-Cholesterol-verminderingsfaktor) in die Unie van Suid-Afrika aan.

Arcofac is 'n gekonsentreerde, voedende dieettoevoegsel vir die profilaktiese behandeling van aterosklerose, en word voorberei deur Armour Laboratories, Kankakee, Illinois, Amerika.

Die volgende is die formule van *Arcofac*.

Iedere eetlepelvol (15 k.s.) van die emulsie bevat:

Lynoliesuur*	6.8 g.
Vitamien B6	0.6 mg.
Gemengde tokoferole (Vitamien E)	11.5 mg.

(Natriumbensoaat as bewaarmiddel)

*Afkomstig van bastersaffraanolie wat 'n hoër konsentrasie van onversadigde vetsure bevat as enige ander plantaardige olie wat in die handel beskikbaar is.

Aterosklerose: Aterosklerose is geen nuwe siekte nie. Dit is, byvoorbeeld, waargeneem by mummies wat meer as 5,000 jaar oud is. Die bevolking van Amerika is byna deurgaans deur hierdie siekte aangetas. Gevalle van aterosklerose is aangetref by jong volwassenes sowel as by ouer persone. Dit is nie 'n onvermybare gevolg van klimmende jare soos vroeër gemeen is nie. Slegs gedurende die afgelope 45 jaar is studies egter onderneem in 'n poging om die siekte beter te verstaan, en om dit te voorkom en te behandel.

Cholesterol: 'n Belangrike faktor. Hoewel die rol wat cholesterol in die ontwikkeling van aterosklerose speel, op die oomblik nog onbekend is, is daar genoeg bewyse om alle twyfel oor die belangrikheid daarvan uit die weg te ruim. Navorsingswerkers stem saam dat die vermindering van hoë cholesterol-bloedpeile van die allergrootste belang is.

Die voorkoming van verhoogde cholesterol-bloedpeile kan van ewe veel belang wees.

Verduideliking van die Terapie: Bloed-cholesterolpeile kan op die volgende maniere gekontroleer word:

1. *Ernstige Dieetbeperkinge.* Bloed-cholesterolpeile kan verminder word deur die opneming van voedsel bevattende cholesterol en hoogs versadigde vetsure ingrypend te beperk. Dit is egter baie moeilik om met sulke ernstige dieetbeperkings vol te hou, want hulle maak die dieet onsmaaklik, eentonig en selfs gebrekkig uit 'n voedingsoogpunt.

2. *Belangrike Dieetveranderings.* Plantaardige oliesoorte wat ryk aan essensiële (onversadigde) vetsure is, is in staat om verhoogde bloed-cholesterolpeile op 'n voorspelbare wyse te verminder. As die dieet op so 'n manier verander word dat dit voldoende hoeveelhede van sodanige onversadigde vetsure bevat, sal dit hoë serum-cholesterolpeile verminder. Hierdie oliesoorte kan egter nie in voldoende hoeveelhede oor lang tydperke geneem word nie.

3. *Normale Dieet met Arcofac.* Die voor die hand liggende oplossing van hierdie probleem is 'n smaaklike gekonsentreerde, voedende dieettoevoegsel van onversadigde vetsure wat die pasiënt in staat stel om op 'n normale, gebalanseerde dieet te bly. Na 7 jaar van kliniese evaluasie het die Armour-organisasie so 'n voedingstoevoegsel ontwikkel wat nou onder die naam *Arcofac* beskikbaar gestel word.

Iedere bestanddeel van *Arcofac* soos aangetoon in bostaande formule het die volgende eienskappe:

(*a*) 'n Hoë konsentrasie van lynoliesaad—'n essensiële (onversadigde) vetsuur wat die bloedcholesterol verminder.

(*b*) *Vitamien* B6—noodsaaklik vir die omskepping (binne in die liggaam) van lynoliesaad in die primêre, essensiële vetsuur, aragidoniese suur.

(*c*) Vitamien E-tokoferole is kragtige anti-oksideringsmiddels en beskerm die lynoliesaad teen kragsverlies.

Dosis: (*a*) *Profilakties.* As die bloed-cholesterol binne die normale perke is, maar as daar 'n moontlikheid bestaan dat die pasiënt hipercholesterolemie sal ontwikkel, skryf 1 tot 2 eetlepelsvol *Arcofac* een maal per dag voor. Gaan die bloed-cholesterolpeil al om die 2 tot 6 maande na.

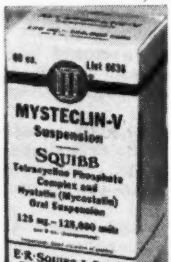
(*d*) *Terapeuties.* As hipercholesterolemie reeds aanwesig is, skryf 2 tot 8 eetlepelsvol per dag voor. Dit is raadsaam om met 'n hoë dosis te begin sodat die cholesterolpeile vinniger verminder kan word. Verminder die dosis dan tot die instandhoudingspeil (iets wat gewoonlik binne 2 tot 4 weke bewerkstellig kan word). Bloed-cholesterolpeile kan al om die 2 tot 4 weke gekontroleer word totdat die instandhoudingspeil bereik is.

Beskikbaarstelling: In bottels van 12 ons.

MYSTECLIN–V–SUSPENSIE

Squibb Laboratories kondig die beskikbaarstelling aan van *Mysteclin–V*–suspensie, 'n aangename, kersie-gegeurde olie-suspensie bevattende tetrasiklienfosfaatkompleks gelykstaande aan 125 mg. tetrasiklienhidrochloried en 125,000 eenhede nistatien per teelepelvol (5 k.s.). Dit word verskaf in bottels wat 2 ons bevat.

Die nuwe fosfaatkompleks van tetrasiklien soos dit in *Mysteclin–V* voorkom, het dieselfde breëspektrum-doeltreffendheid as die ouer tetrasiklienhidrochloried, maar produseer aansienlik vinniger en hoër aanvanklike bloedkonsentrasies. Hierdie nuwe vorm van die breë-spektrum-antibioticum wat meer dikwels as enige ander voorgeskryf word, is veral nuttig vir vinnige aanslae op die gewone bakteriese infeksies.



Omdat die breë-spektrum-antibiotica die bakteriese ewewig in die ingewandskanaal versteur, groei die swam *Candida* (*Monilia*) *albicans* dikwels te geil. So 'n geil groeisel kan aanleiding tot lastige en selfs ernstige kliniese manifestasies gee. Om hierdie rede bevat *Mysteclin–V*–suspensie ook *Mycostatin*, die eerste veilige antibioticum met 'n spesifieke swambestrydende bedrywigheid. Dit is 'n doeltreffende verdedigingsmiddel teen die verwikkelings wat soms op behandeling met 'n antibioticum volg.

Voorrade *Mysteclin–V*–suspensie is verkrygbaar by alle groothandels- en kleinhandelsaptekers.

Fabrikante: Squibb Laboratories (Pty.) Limited, Posbus 9975, Johannesburg.